

Synaptotagmin I/II (H-9): sc-393392

BACKGROUND

Synaptotagmins are a large gene family of synaptic vesicle type III integral membrane proteins that function as regulators of both exocytosis and endocytosis and are involved in neurotransmitter secretion from small secretory vesicles. Calcium binds to Synaptotagmin I which triggers neurotransmitter release at the synapse. Synaptotagmin II is phosphorylated by WNK1 in a process that regulates calcium-dependent interactions. Synaptotagmin III is involved in calcium-dependent exocytosis of secretory vesicles in endocrine cells and neurons. Synaptotagmin IV is expressed in neuronal tissues, and has the highest mRNA levels in the hippocampus. The proximity of the Synaptotagmin IV gene to markers of several psychiatric disorders suggest an involvement of synaptotagmin IV in human disease. Synaptotagmin V is a dense-core vesicle-specific protein that regulates a specific type of calcium-regulated secretion. Synaptotagmin VI interacts with adaptor protein-2 in a calcium-independent manner. Synaptotagmin VII is widely expressed in non-neuronal tissues.

REFERENCES

- Hilbush, B.S. and Morgan, J.I. 1994. A third Synaptotagmin gene, Syt3, in the mouse. *Proc. Natl. Acad. Sci. USA* 91: 8195-8199.
- Li, C., et al. 1995. Ca²⁺-dependent and -independent activities of neural and non-neural synaptotagmins. *Nature* 375: 594-599.
- Kishore, B.K., et al. 1998 Expression of Synaptotagmin VIII in rat kidney. *Am. J. Physiol.* 275: F131-F142.

CHROMOSOMAL LOCATION

Genetic locus: SYT1 (human) mapping to 12q21.2, SYT2 (human) mapping to 1q32.1; Syt1 (mouse) mapping to 10 D1, Syt2 (mouse) mapping to 1 E4.

SOURCE

Synaptotagmin I/II (H-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 301-318 within an internal region of Synaptotagmin I of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Synaptotagmin I/II (H-9) is available conjugated to agarose (sc-393392 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393392 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393392 PE), fluorescein (sc-393392 FITC), Alexa Fluor® 488 (sc-393392 AF488), Alexa Fluor® 546 (sc-393392 AF546), Alexa Fluor® 594 (sc-393392 AF594) or Alexa Fluor® 647 (sc-393392 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393392 AF680) or Alexa Fluor® 790 (sc-393392 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393392 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

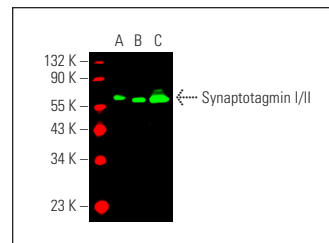
Synaptotagmin I/II (H-9) is recommended for detection of Synaptotagmin I/II of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Synaptotagmin I/II siRNA (h): sc-44135, Synaptotagmin I/II shRNA Plasmid (h): sc-44135-SH and Synaptotagmin I/II shRNA (h) Lentiviral Particles: sc-44135-V.

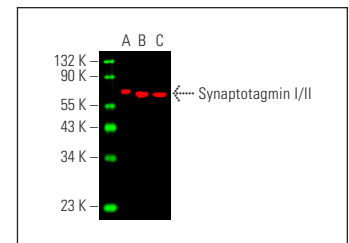
Molecular Weight of Synaptotagmin I/II: 65/67 kDa.

Positive Controls: Neuro-2A whole cell lysate: sc-364185, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

DATA



Synaptotagmin I/II (H-9) Alexa Fluor® 680: sc-393392 AF680. Direct near-infrared western blot analysis of Synaptotagmin I/II expression in Neuro-2A whole cell lysate (A) and mouse brain (B) and rat brain (C) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 790: sc-516731.



Synaptotagmin I/II (H-9) Alexa Fluor® 790: sc-393392 AF790. Direct near-infrared western blot analysis of Synaptotagmin I/II expression in HeLa (A), Neuro-2A (B) and C6 (C) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 680: sc-516730. sc-516731.

SELECT PRODUCT CITATIONS

- Pathe-Neuschäfer-Rube, A., et al. 2018. Cell-based reporter release assay to determine the potency of proteolytic bacterial neurotoxins. *Toxins* 10 pii: E360.
- Montecinos-Oliva, C., et al. 2020. Hormetic-like effects of L-homocysteine on synaptic structure, function, and Aβ aggregation. *Pharmaceuticals* 13: 24.
- Becerra-Amezcuca, M.P., et al. 2020. Effect of *Pterois volitans* (lionfish) venom on cholinergic and dopaminergic systems. *Environ. Toxicol. Pharmacol.* 77: 103359.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.